TRANSMITTAL FORM

Attorney Docket No.
RPS920000110/1949P

AR 2125

In re the application: **Barry A. KRITT et al.**

Confirmation No.: **4736**

Serial No: **09/814,524**

Group Art Unit: **2125**

Filed: **March 22, 2001**

Examiner: **Ortiz Rodriguez, Carlos R.**

For: **Method and System for Object Oriented Approach and Data Model for Configure-to-Order Manufacturing System**

ENCLOSURES *(check all that apply)*		
☐ Amendment/Reply	☐ Assignment and Recordation Cover Sheet	☐ After Allowance Communication to Group
☐ After Final	☐ Part B-Issue Fee Transmittal	☐ Appeal Communication to Board of Appeals and Interferences
☐ Information disclosure statement	☐ Letter to Draftsman	■ Appeal Communication to Group *(Appeal Notice, Brief, Reply Brief)*
☐ Form 1449	☐ Drawings	☐ Status Letter
☐ (X) Copies of References	☐ Petition	■ Postcard
☐ Extension of Time Request *	☐ Fee Address Indication Form	☐ Other Enclosure(s) (*please identify below):*
☐ Express Abandonment	☐ Terminal Disclaimer	
☐ Certified Copy of Priority Doc	☐ Power of Attorney and Revocation of Prior Powers	
☐ Response to Incomplete Appln	☐ Change of Correspondence Address	
☐ Response to Missing Parts	*Extension of Term: Pursuant to 37 CFR 1.136, Applicant petitions the Commissioner to extend the time for response for xxxxxx month(s), from to .	
☐ Executed Declaration by Inventor(s)		

CLAIMS					
FOR	Claims Remaining After Amendment	Highest # of Claims Previously Paid For	Extra Claims	RATE	FEE
Total Claims	58	59	0	$18.00	$ 0.00
Independent Claims	6	6	0	$86.00	$ 0.00
				Total Fees	$ 0.00

METHOD OF PAYMENT

☐	Check no. _____ in the amount of $ _____ is enclosed for payment of fees.
■	Charge **$330.00** to Deposit Account No. 50-0563 (IBM Corporation) for payment of appeal fee.
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SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Attorney Name	Joyce Tom, Reg. No. 48,681
Signature	
Date	July 16, 2004

CERTIFICATE OF MAILING

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

APPEAL NO:

In Re Application of Barry A. KRITT et al.

Serial No: 09/814,524

Filed: March 22, 2001

For: METHOD AND SYSTEM FOR OBJECT ORIENTED APPROACH AND DATA MODEL FOR CONFIGURE-TO-ORDER MANUFACTURING SYSTEM

APPELLANT'S BRIEF

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TOPICAL INDEX

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Jinny Nguyen

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

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In Re Application of: Barry A. KRITT et al.

Serial No.: 09/814,524

Filed: March 22, 2001

Date: July 16, 2004

Confirmation No: 4736

Group Art Unit: 2125

Examiner: Ortiz Rodriguez, Carlos R.

For: METHOD AND SYSTEM FOR OBJECT ORIENTED APPROACH AND DATA MODEL FOR CONFIGURE-TO-ORDER MANUFACTURING SYSTEM

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Alexandria, VA 22313-1450

APPELLANT'S BRIEF ON APPEAL

Sir:

Appellant herein files an Appeal Brief drafted in accordance with the provisions of 37 C.F.R. § 1.192(c) as follows:

I. REAL PARTY IN INTEREST

Appellants respectfully submit that the above-captioned application is assigned, in its entirety to International Business Machines Corporation, of Armonk, New York.

II. RELATED APPEALS AND INTERFERENCES

Appellants state that, upon information and belief, they are not aware of any co-pending appeal or interference which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

III. STATUS OF CLAIMS

Claims 1-59 are pending in the present application and stand rejected. Claims 1, 15, 17, 24, 37, 48, 50 and 55 were amended in a Response filed on December 5, 2003. Accordingly, Claims 1-59 are on appeal and all applied rejections concerning those claims are herein being appealed.

IV. STATUS OF AMENDMENT

Appellants submitted proposed amendments to claims 1, 15, 24, 37, 48 and 55 in a response after final rejection on March 15, 2004. The amendments were not entered. Accordingly, claims 1-59, as amended in the December 5, 2003 response are on appeal.

V. SUMMARY OF THE INVENTION

The present invention is directed to an object oriented approach and data model for configure-to-order product manufacturing systems. In the preferred embodiment, an automated manufacturing system is coupled to a user interface which allows a user to submit a plurality of requirements for a product to be manufactured during an ordering phase. Based on the requirements, a plan is created using a descriptive language that is understood and interpreted by the automated manufacturing system. The plan describes fully every aspect of the product, from

the hardware components to the types of connections between devices. The plan is then conveyed to the automated manufacturing system, which interprets the plan and assembles the product. By utilizing the descriptive language to describe the product, all processes in a product fulfillment system, e.g., configuration, testing and assembly, can understand the plan and change the plan if needed. Thus, customer input is minimized.

The present invention, as recited in independent claims 1, 15, 37, and 55, provides:

1. A method for product fulfillment in an automated manufacturing system, the method comprising the steps of:

a) obtaining requirements for a product from a customer;

b) creating a manufacturing plan from the requirements using a descriptive language, wherein the automated manufacturing system is capable of interpreting the descriptive language; and

c) conveying the manufacturing plan to the automated manufacturing system, wherein the automated manufacturing system interprets the manufacturing plan and builds the product satisfying the requirements.

15. A method for product fulfillment in a configure-to-order automated manufacturing system, the method comprising the steps of:

a) obtaining requirements for a product from a customer through a user interface;

b) creating a manufacturing plan from the requirements using a descriptive language, wherein the automated manufacturing system is capable of interpreting the descriptive language and the descriptive language is hierarchical and object oriented; and

c) conveying the manufacturing plan to the automated manufacturing system, wherein the automated manufacturing system interprets the manufacturing plan and builds the product satisfying the requirements.

37. A configure-to-order automated manufacturing system, comprising:

a user interface for obtaining requirements for a product from a customer;

an order processing system for automatically creating a manufacturing plan from the requirements using a descriptive language, wherein the automated manufacturing system is capable of interpreting the descriptive language; and

a plurality of processes for manufacturing the product from the manufacturing plan.

55. A method for describing a product for manufacture, comprising the steps of:

a) providing a descriptive language, wherein an automated manufacturing system is capable of interpreting the descriptive language and the descriptive language is hierarchical and object oriented; and

b) using the descriptive language to create a manufacturing plan that describes the product.

Independent claim 24 is a method claim having a scope similar to that of claim 1 and claim 15, and independent claim 48 is a software claim having a scope similar to that of claim 1.

VI. ISSUES

The issue presented is:

1. Whether claims 1-9, 13-21, 23-27, 36-43, 47-52 and 55-59 are unpatentable under 35 U.S.C. §102(e) over Akasaka et al. (U.S. Patent No. 5,576,965).

2. Whether claims 10-12, 22, 28-35, 44-46 and 53-54 are unpatentable under 35 U.S.C. §103(a) over Akasaka in view of Forth et al.(U.S. Pub. No. 2002/0120521).

VII. GROUPING OF CLAIMS

Appellants hereby state that claims 1-59 do not stand or fall together, but rather claims 1-6, 10-19, 22-42, 44-50 and 53-59 form one group, claim 7 forms a second group, claims 8, 20 and 51 form a third group, and claims 9, 21, 43 and 52 form a fourth group.

VIII. ARGUMENTS

A. Summary of the Applied Rejections

In the Final Office Action, the Examiner rejected claims 1-9, 13-21, 23-27, 36-43, 47-52 and 55-59 under 35 U.S.C. §102(e) as being anticipated by Akasaka et al. (U.S. Patent No.

5,576,965). In so doing, the Examiner stated:

> Regarding claim 1, 2, 13-15, 23-25, 36-38, 47-48 and 55 Akasaka et al. discloses a method for product fulfillment in an automated configure-to-order manufacturing system (see abstract lines 9-11), the method comprising the steps of: obtaining requirements for a product from a customer though a user interface (see col 12, lines 49-52); automatically (see col 3 lines 24-31) creating a plan from the requirements using a descriptive language, the descriptive language being hierarchical and object oriented (see col 1 lines 5-15; and conveying the plan to the automated manufacturing system, wherein the plan is used to manufacture the product satisfying the requirements (see col 3 lines 21-32); and storing the plan for future repairs and maintenance (see col 13 lines 12-21).

Claims 10-12, 22, 28-35, 44-46 and 53-54 were rejected under 35 U.S.C. §103(a) as being unpatentable over Akasaka in view of Forth et al.(U.S. Pub. No. 2002/0120521).

B. The Cited Prior Art

Akasaka is directed exclusively to a "*design* aiding apparatus . . . for use in a field of computer software to facilitate a *design process*." Abstract. Akasaka provides "a design aiding method in which a design procedure is automatically generated in association with various patterns required and which can guide the design procedure in a situation where judgment of the user is necessitated, for example, at an occurrence of a plurality of candidates of values of attributes appearing in a process of design operation, thereby appropriately generating a design plan at a high speed." (Col. 3, lines 23-32). In Akasaka, the design aiding system ultimately creates a *design* plan, which is a diagram with attribute values (see Figure 36).

Forth is directed to a system that permits an end-user to order IED's from a manufacturer or distributor specifically customized to their needs including all options and software such that when the IED is delivered, it is ready to be installed out of the box. (Page 4, ¶ 0041).

C. **Independent Claims 1, 15, 24, 37, 48 and 55 are Allowable Over Akasaka.**

Whereas the present invention is directed to an automated *product fulfillment/manufacturing* process, Akasaka is directed exclusively to a "*design* aiding apparatus . . . for use in a field of computer software to facilitate a *design process*." Abstract. As such, Appellants respectfully submit that Akasaka fails to teach or suggest the present invention, as recited in claims 1, 15, 24, 37, 48 and 55.

In particular, Akasaka fails to teach or suggest "creating a manufacturing plan . . . using a descriptive language, wherein the automated *manufacturing* system is capable of interpreting the descriptive language," as recited in claims 1, 15, 24, 37, 48 and 55. In the present invention, the manufacturing plan is a *descriptive* document, i.e., the manufacturing plan is *not* a diagram, as in Akasaka. The document is written in a language that is hierarchical and object-oriented and that is understood and interpreted by the automated *manufacturing* system. Akasaka does not teach or suggest that the resultant design plan is anything other than a *diagram* of the design object and a list of attribute values for the objects of the design (Figure 36).

Appellants respectfully submit that the portion of Akasaka that purportedly teaches using a descriptive language to create a manufacturing plan merely describes a design aiding system that incorporates a user's design specifications with the system's constraints to develop a design plan. (Col. 1, lines 5-15). There is no mention or suggestion of "creating a *manufacturing* plan from the requirements using a descriptive language."

Moreover, Akasaka fails to teach or suggest that conveying the manufacturing plan to an automated manufacturing system that is "capable of interpreting the descriptive language" used to create the manufacturing plan, as recited in claims 1, 15, 24, 37, 48 and 55. The cited portion of Akasaka that purportedly teaches this feature describes providing a design aiding method that

guides the design process in a situation where judgment of the user is necessitated in order to generate a design plan at a high speed. (Col. 3, lines 21-32). This portion makes no mention or suggestion of conveying the manufacturing plan to an automated manufacturing system that is "capable of interpreting the descriptive language" used to create the manufacturing plan, as recited in claims 1, 15, 24, 37, 48 and 55.

In the Final Office Action, the Examiner asserts that certain terms, such as "build" and "manufacturing plan" were ambiguous and that the specification of the application failed to provide a clear understanding of the terms. The Examiner then interpreted the term "build" to mean "to develop according to a systematic plan," and the term "manufacturing plan" to mean "the designing procedure among other manufacturing procedures (assembly, testing, etc)." (Final Office Action, p. 9). Appellants disagree and respectfully submit that the terms "build" and "manufacturing plan" should be given meanings that are consistent with their ordinary use. According to the Webster's dictionary, the word "build" means "to make by putting together materials, parts, etc; construct; erect." A "manufacturing plan" is a plan for manufacturing. Referring to Webster's dictionary, "manufacturing" means "to make by hand or, especially, by machinery, often on a large scale and with division of labor." Appellants respectfully submit that the specification supports these definitions of the terms (see e.g., Specification at page 17, line 17 to page 19, line 1), and that the Examiner's definitions are erroneous.

Based on the foregoing, Appellants respectfully submit that Akasaka fails to teach or suggest the cooperation of elements recited in independent claims 1, 15, 24, 37, 48 and 55. Accordingly, claims 1, 15, 24, 37, 48 and 55 are allowable over Akasaka. Claims 2-9, 13, 14, 16-21, 23, 25-27, 36, 38-43, 47, 49-52 and 56-59 depend from claims 1, 15, 24, 37, 48 and 55, respectively. Thus, the arguments presented above apply with full force to those dependent

claims. Accordingly, for that reason, Appellants respectfully submit that claims 2-9, 13, 14, 16-21, 23, 25-27, 36, 38-43, 47, 49-52 and 56-59 are also allowable over Akasaka.

D. **Dependent Claim 7 Is Allowable Over Akasaka.**

Appellants respectfully submit that, for additional reasons, Akasaka fails to teach or suggest the present invention, as recited in claim 7.

Claim 7 recites:

> 7. The method of claim 1, wherein the plan integrates the requirements with population rules that determine a sequence for manufacturing the product, and configuration rules that determine proper configuration settings.

In rejecting claim 7, the Examiner stated that the limitations recited in claim 7 "is inherent to Akasaka." (Final Office Action, p. 4). Appellants disagree.

Akasaka's plan is a *design* plan. As such, Appellants respectfully submit that a design plan would not inherently include population rules and configuration rules because such rules are used in *building or constructing* the product and not in *designing* the product. During a telephone interview with the Examiner (conducted March 11, 2004), the Examiner and Appellants' representative discussed this very issue, and the parties reached agreement on this point.

Accordingly, Appellants respectfully submit that claim 7 is allowable over Akasaka for this additional reason.

D. **Dependent Claims 8 and 9 Are Allowable Over Akasaka.**

As stated above, claims 8 and 9 are allowable over Akasaka because they depend from claim 1. Appellants further submit that claims 8 and 9 are allowable over Akasaka

because Akasaka fails to teach or suggest that "the automated manufacturing system includes a plurality of processes . . . the plurality of processes being software based," as recited in claim 8, and "providing a portion of the plan to a process of the plurality of processes, the portion being relevant to the process, thereby reducing the amount of information conveyed throughout the automated manufacturing system," as recited in claim 9.

Akasaka fails to mention or suggest an automated manufacturing process because Akasaka is directed to a *design aiding apparatus*, and *not* to a manufacturing system. Because Akasaka does not teach or suggest an automated manufacturing system, it necessarily does not teach or suggest one having a "plurality of processes," or "providing a portion of the plan" to one of the processes.

The cited portion of Akasaka purportedly teaching an automated manufacturing system having a plurality of processes merely states that the design aiding system is used "in a field of computer software to facilitate a design process." (Abstract, line 4). The cited portion of Akasaka purportedly teaching "providing a portion of the plan to a process" is the same portion cited above for teaching "conveying the plan to the automated manufacturing system." (Col. 3, lines 21-32). As before, this portion makes no mention of "providing a portion of the plan to a process of the plurality of processes."

For the reasons above, Applicants respectfully submit that Akasaka fails to teach or suggest the present invention as recited in claims 8 and 9. Thus, claims 8 and 9 are allowable over Akasaka. Claims 20 and 51 have the same scope of claim 8, and claims 21, 43 and 52 have the same scope of claim 9. Accordingly claims 20, 51, 21, 43 and 52 are also allowable over Akasaka for this additional reason.

E. **Claims 10-12, 22, 28-35, 44-46 And 53-54 are Allowable Over Akasaka In View Of Forth.**

The Examiner rejected claims 10-12, 22, 28-35, 44-46 and 53-54 under 35 U.S.C. §103(a) as being unpatentable over Akasaka in view of Forth et al.(U.S. Pub. No. 2002/0120521). Forth is directed to a system that permits an end-user to order IED's from a manufacturer or distributor specifically customized to their needs including all options and software such that when the IED is delivered, it is ready to be installed out of the box. (Page 4, ¶ 0041).

Appellants respectfully submit that claims 10-12, 22, 28-35, 44-46 and 53-54 depend from claims 1, 15, 24, 37, 48 and 55, respectively, which are allowable over Akasaka. Because Forth fails to remedy the defects of Akasaka, i.e., Forth fails to teach or suggest "creating a manufacturing plan . . . using a descriptive language, wherein the automated manufacturing system is capable of interpreting the descriptive language," and "conveying the manufacturing plan to the automated manufacturing system," claims 10-12, 22, 28-35, 44-46 and 53-54 are allowable over Akasaka in view of Forth.

F. **Summary of Arguments**

For the reasons set forth above, Appellants respectfully submit that the claims 1-59 are allowable over the cited references. Appellants respectfully request that the final rejection of claims 1-59 be reversed.

Note: For convenience of detachment without disturbing the integrity of the remainder of pages of this Appeal Brief, Appellants' APPENDIX A is attached on separate sheets following the signatory portion of this Appeal Brief.

This Brief is being submitted in triplicate, and authorization for payment of the required Brief fee is contained in the cover letter for this Brief. Please charge any fee that may be necessary for the continued pendency of this application to Deposit Account No. 50-0563 (IBM Corporation).

Respectfully submitted,
SAWYER LAW GROUP LLP

July 16, 2004
Date

Joyce Tom
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IX. APPENDIX A

1. (amended) A method for product fulfillment in an automated manufacturing system, the method comprising the steps of:

a) obtaining requirements for a product from a customer;

b) creating a manufacturing plan from the requirements using a descriptive language, wherein the automated manufacturing system is capable of interpreting the descriptive language; and

c) conveying the manufacturing plan to the automated manufacturing system, wherein the automated manufacturing system interprets the manufacturing plan and builds the product satisfying the requirements.

2. (Original) The method of claim 1, wherein the descriptive language is hierarchical and object oriented.

3. (Original) The method of claim 2, wherein the descriptive language describes the product by a plurality of objects, each object of the plurality of objects having an attribute, and the attribute being assigned a value.

4. (Original) The method of claim 3, wherein each object identifies a component in the product, wherein the component can be either a physical part or a logical part.

5. (Original) The method of claim 4, wherein the descriptive language is capable of describing a hierarchical relationship between objects.

6. (Original) The method of claim 5, wherein the descriptive language is capable of describing a mechanical and electrical connection between objects.

7. (Original) The method of claim 1, wherein the plan integrates the requirements with population rules that determine a sequence for manufacturing the product, and configuration rules that determine proper configuration settings.

. (Original) The method of claim 1, wherein the automated manufacturing system includes a plurality of processes that use the plan to produce the product, the plurality of processes being software based.

9. (Original) The method of claim 8, wherein the conveying step c) further comprises the step of:

c1) providing a portion of the plan to a process of the plurality of processes, the portion being relevant to the process, thereby reducing the amount of information conveyed throughout the automated manufacturing system.

10. (Original) The method of claim 8, wherein one process of the plurality of processes is an assembly process, the assembly process including the step of generating assembly instructions from the plan.

11. (Original) The method of claim 10, wherein the assembly instructions are provided in a pictorial form such that an assembly worker can view the product assembled.

12. (Original) The method of claim 1, wherein obtaining step (a) further includes the step of entering the requirements through a user interface, the user interface being a web based front end ordering system.

13. (Original) The method of claim 1, wherein the plan is created automatically.

14. (Original) The method of claim 1 further comprising the step of (e) storing the plan for future repairs and maintenance.

15. (amended) A method for product fulfillment in a configure-to-order automated manufacturing system, the method comprising the steps of:

a) obtaining requirements for a product from a customer through a user interface;

b) creating a manufacturing plan from the requirements using a descriptive language, wherein the automated manufacturing system is capable of interpreting the descriptive language and the descriptive language is hierarchical and object oriented; and

c) conveying the manufacturing plan to the automated manufacturing system, wherein the automated manufacturing system interprets the manufacturing plan and builds the product satisfying the requirements.

16. (Original) The method of claim 15, wherein the descriptive language describes the product by a plurality of objects, each object of the plurality of objects having an attribute, and the attribute being assigned a value.

17. (amended) The method of claim 16, wherein each object identifies a component in the product, wherein the component can be either a physical part or a logical part.

18. (Original) The method of claim 17, wherein the descriptive language is capable of describing a hierarchical relationship between objects.

19. (Original) The method of claim 18, wherein the descriptive language is capable of describing a mechanical and electrical connection between objects.

20. (Original) The method of claim 15, wherein the automated manufacturing system includes a plurality of processes that use the plan to produce the product, the plurality of processes being software based.

21. (Original) The method of claim 20, wherein the conveying step c) further comprises the step of:

c1) providing a portion of the plan to a process of the plurality of processes, the portion being relevant to the process, thereby reducing the amount of information conveyed throughout the automated manufacturing system.

22. (Original) The method of claim 15, wherein obtaining step (a) further includes the step of entering the requirements through a user interface, the user interface being a web based front end ordering system.

23. (Original) The method of claim 15 further comprising the step of (e) storing the plan for future repairs and maintenance.

24. (amended) A method for product fulfillment in a configure-to-order computer manufacturing system, the method comprising the steps of:

a) obtaining requirements for a computer product from a customer through a user interface;

b) automatically creating a manufacturing plan from the requirements using a descriptive language, wherein the automated manufacturing system is capable of interpreting the descriptive language; and

c) conveying the manufacturing plan to the automated manufacturing system, wherein the automated manufacturing system interprets the manufacturing plan and builds the computer product satisfying the requirements.

25. (Original) The method of claim 24, wherein the descriptive language is hierarchical and object oriented.

26. (Original) The method of claim 25, wherein the descriptive language describes the computer by a plurality of objects, each object of the plurality of objects having an attribute, and the attribute being assigned a value.

27. (Original) The method of claim 26, wherein each object identifies a component in the customized computer, wherein the component can be either a physical part or a logical part.

28. (Original) The method of claim 24, wherein requirements include hardware parts, software parts, service parts, and personalized data.

29. (Original) The method of claim 28, wherein the personalized data includes an IP address, a computer name, and slot preferences.

30. (Original) The method of claim 29, wherein the obtaining step (a) further includes the steps of:

a1) entering a plurality of part numbers, each part number corresponding to a hardware part, a software part, or a service part; and

a2) entering the personalized data.

31. (Original) The method of claim 30, wherein the plurality of part numbers and personalized data is automatically converted into the descriptive language to form the plan.

32. (Original) The method of claim 31, wherein the automated manufacturing system includes a plurality of processes that use the plan to produce the computer product, the plurality of processes being software based.

33. (Original) The method of claim 32, wherein one process of the plurality of processes is an assembly process, the assembly process including the step of generating assembly instructions from the plan.

34. (Original) The method of claim 33, wherein the assembly instructions are provided in a pictorial form such that an assembly worker can view the computer product assembled, including the slot preferences for the hardware parts.

35. (Original) The method of claim 24, wherein the user interface is a web based front end ordering system.

36. (Original) The method of claim 24 further comprising the step of (e) storing the plan for future repairs and maintenance.

37. (amended) A configure-to-order automated manufacturing system, comprising:

a user interface for obtaining requirements for a product from a customer;

an order processing system for automatically creating a manufacturing plan from the requirements using a descriptive language, wherein the automated manufacturing system is capable of interpreting the descriptive language; and

a plurality of processes for manufacturing the product from the manufacturing plan.

38. (Original) The system of claim 37, wherein the descriptive language is hierarchical and object oriented.

39. (Original) The system of claim 38, wherein the descriptive language describes the product by a plurality of objects, each object of the plurality of objects having an attribute, and the attribute being assigned a value.

40. (Original) The system of claim 39, wherein each object identifies a component in the product, and wherein the component can be either a physical part or a logical part.

41. (Original) The system of claim 40, wherein the descriptive language is capable of describing a hierarchical relationship between objects.

42. (Original) The system of claim 41, wherein the descriptive language is capable of describing a mechanical and electrical connection between objects.

43. (Original) The system of claim 37, wherein each process of the plurality of processes is provided a portion of the plan, the portion being relevant to the process, thereby reducing the amount of data conveyed throughout the manufacturing system.

44. (Original) The system of claim 43, wherein one process of the plurality of processes is an assembly process that generates assembly instructions from the plan.

45. (Original) The system of claim 44, wherein the assembly instructions are provided in a pictorial form such that an assembly worker can view the product assembled.

46. (Original) The system of claim 37, wherein the user interface is a web based front end ordering system.

47. (Original) The system of claim 37 further comprising a database for storing the plan

for future repairs and maintenance.

48. (amended) A computer readable medium containing program instructions for product fulfillment in a configure-to-order automated manufacturing system, the program instructions for:

a) obtaining requirements for a product from a customer through a user interface;

b) creating a manufacturing plan from the requirements using a descriptive language, wherein the automated manufacturing system is capable of interpreting the descriptive language;

c) conveying the manufacturing plan to the automated manufacturing system, wherein the automated manufacturing system interprets the manufacturing plan and builds the product satisfying the requirements; and

(e) storing the manufacturing plan for future repairs and maintenance.

49. (Original) The computer readable medium of claim 48, wherein the descriptive language is hierarchical and object oriented, and describes the product by a plurality of objects, each object of the plurality of objects having an attribute, and the attribute being assigned a value.

50. (amended) The computer readable medium of claim 49, wherein each object identifies a component in the product, and wherein the component can be either a physical part or a logical part.

51. (Original) The computer readable medium of claim 48, wherein the automated

manufacturing system includes a plurality of processes that use the plan to produce the product, the plurality of processes being software based.

52. (Original) The computer readable medium of claim 51, wherein the conveying instruction (c) further comprises the instruction of:

c1) providing a portion of the plan to each process of the plurality of processes, the portion being relevant to the process, thereby reducing the amount of information conveyed throughout the automated manufacturing system.

53. (Original) The computer readable medium of claim 51, wherein one process of the plurality of processes is an assembly process, the assembly process including the instruction of generating assembly instructions from the plan.

54. (Original) The computer readable medium of claim 53, wherein the assembly instructions are provided in a pictorial form such that an assembly worker can view the product assembled.

55. (amended) A method for describing a product for manufacture, comprising the steps of:

a) providing a descriptive language, wherein an automated manufacturing system is capable of interpreting the descriptive language and the descriptive language is hierarchical and object oriented; and

b) using the descriptive language to create a manufacturing plan that describes the

product.

56. (Original) The method of claim 55, wherein the descriptive language describes the product by a plurality of objects, each object of the plurality of objects having an attribute, and the attribute being assigned a value.

57. (Original) The method of claim 56, wherein each object identifies a component in the product, wherein the component can be either a physical part or a logical part.

58. (Original) The method of claim 57, wherein the descriptive language is capable of describing a hierarchical relationship between objects.

59. (Original) The method of claim 58, wherein the descriptive language is capable of describing a mechanical and electrical connection between objects.